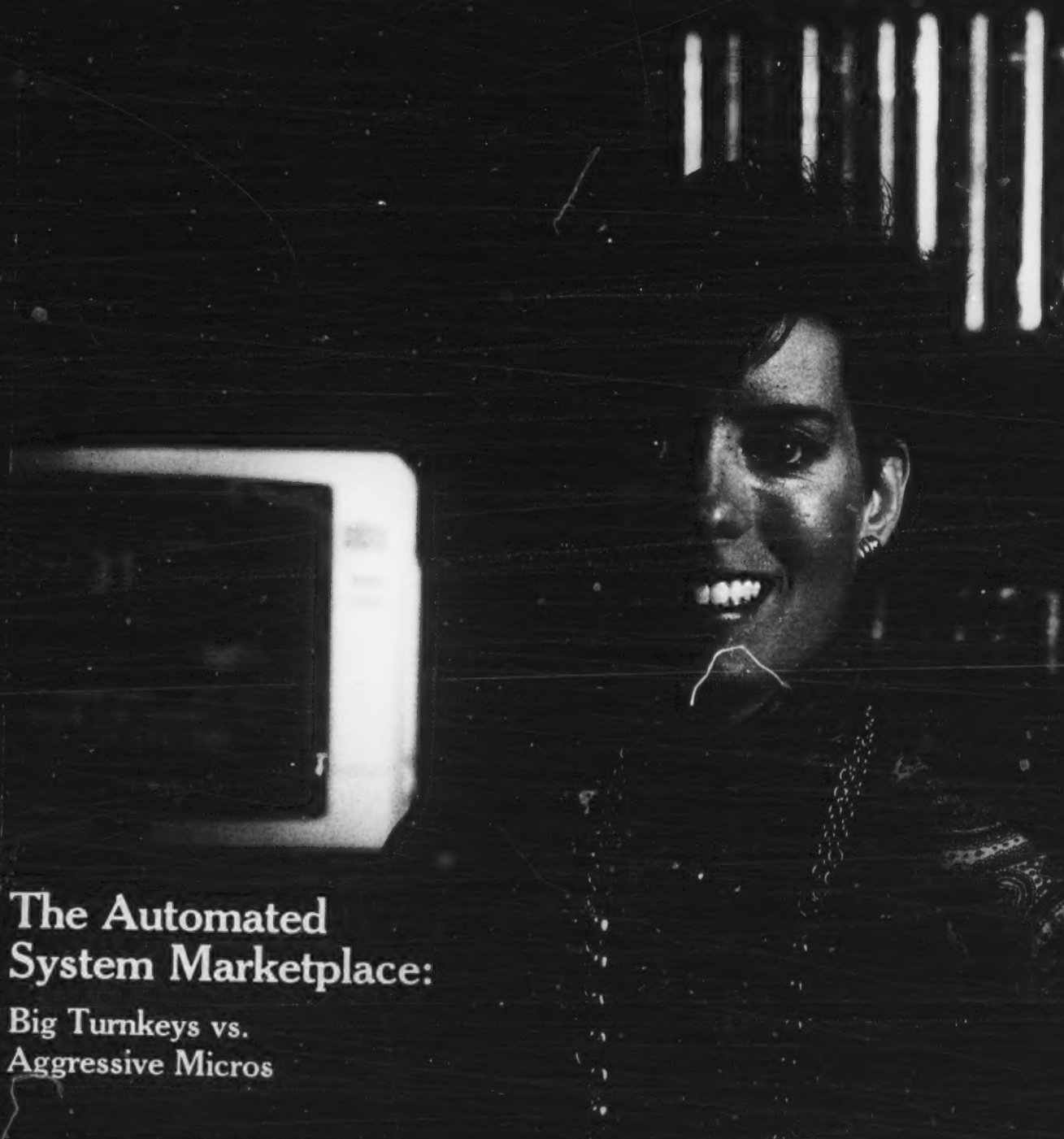


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# LIBRARY JOURNAL<sup>®</sup>

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## The Automated System Marketplace:

Big Turnkeys vs.  
Aggressive Micros

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*NYU's Melanie Dodson as BobCat has a birthday. See "NYU's BobCat," News, p. 34. And see other developments in the "Automated System Marketplace 1988," p. 41. Photograph by Bill Kelly*

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*Another record year for system installations  
but an overall flattening of growth*

# Automated System Marketplace

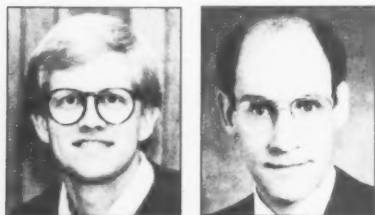
1988:

## Focused on Fulfilling Commitments

By Robert A. Walton & Frank R. Bridge

**D**URING 1988, the library automation marketplace enjoyed another record year, with approximately 360 systems installed. Again, as in prior years, this year's article reviews and concentrates on the types of systems that libraries were purchasing, examines some of the trends in the marketplace, and looks for patterns in market segments, e.g., the public or academic library automation marketplace. Also, as with prior years, the controversy over how to count market share is alive and still screaming (see "Counting Market Share: Vendor Consensus or Confusion?" p. 44). The authors have examined the number of installed systems that may support one or more libraries instead of counting the number of libraries that may reside in any vendor camp, revenues, or other possible denominator.

Robert A. Walton is Data Processing Director, Texas State Library and owner, R. Walton & Associates, Austin, Texas, and Frank R. Bridge is Automation Consultant, Texas State Library and Associate Consultant, R. Walton & Associates



### How We Defined It

1. Some vendors elected to count multiple libraries sharing a single system as multiple systems. The authors have adjusted for these inconsistencies.
2. Other vendors defined single-station microcomputers as "systems." For the purposes of this article the authors have made similar adjustments wherever possible.
3. The annual system counts for each vendor may not exactly total correctly from year to year. The totals in this article attempt to reflect not only information taken from the user lists in defining "systems," but also system de-installations or other library user abandonments.

### Flattening growth?

Although 1988 was another record year for system installations, it is significant to note that the number of installations increased only about 16 percent, whereas during 1987 the market had jumped dramatically, up more than 55 percent. The 1987 huge growth rate caught all savvy automation market observers and consultants by surprise but their stature has been restored. Most experts were correct during 1988 that the market would and

did experience a gradual flattening when compared to prior years that were characterized by an almost stampede of system installations.

So, is the automation marketplace slowing down? Are libraries losing some interest in library automation? The answer is a definitive *no*. For any business market to experience an annual growth rate of over 16 percent can only be called a healthy and thriving industry. But it does appear that the dramatic days of installation acrobatics by automated system vendors are over. The market has grown and matured, is healthy and strong, has entered something like a "thirtysomething"-ish period, where the technology sexiness has diminished and library consumers find moderate growth both probable and desirable.

As the cost of computer equipment continued to decline during 1988, there was an increasing number of smaller systems (one to 16 terminals) that were sold to smaller libraries. As system purchase costs continue to drop, the total potential market of library customers should be disproportionately expanding as the number of smaller libraries interested in library automation significantly increases. This is particularly so when compared to larger libraries that as a group may be entering a period of automation saturation, many having already achieved a high level of automation investment. With lower-cost products and more eligible library buyers, why didn't the market

**Chart 1: Vendor Market Shares  
for Total Installed Systems (All Years)**

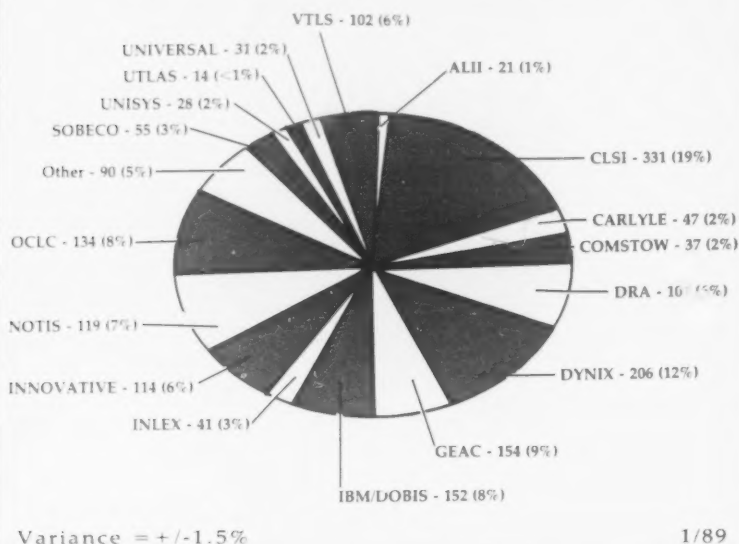
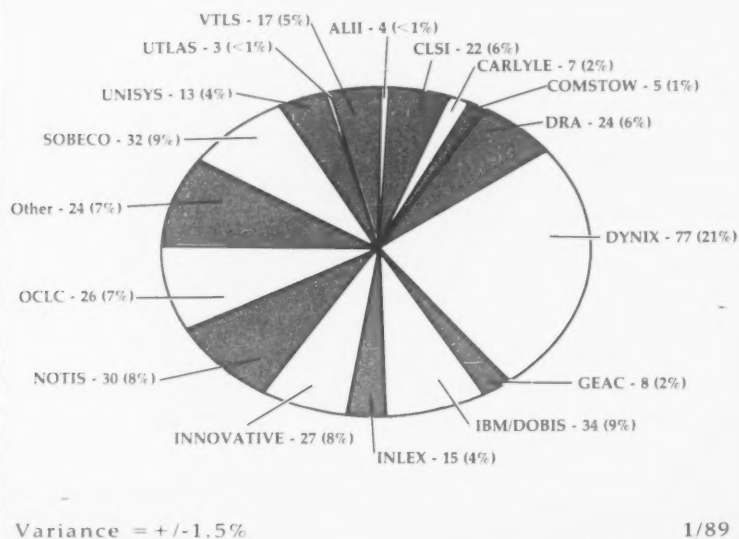


**Chart 2: Vendor Market Shares  
for Total Installed Systems (1988 only)**



expand faster in 1988 than it had in 1987 or 1986? Why aren't vendors fighting over the smaller system library market?

#### Using corporate strategy

Some vendors, such as CLSI, ALII, Dynix, and Sobeco have tried to coordinate corporate strategy with the growth of the smaller library market segment, but with only modest success. This inability of most vendors to respond to an almost desper-

ate need and desire by smaller libraries for reasonably priced automation products leaves most of the institutions confused and frustrated.

Lower costs of computer hardware have created increasing demand for systems, but due to the continuing high cost of software licenses, software support, staff training, and installation services, significant changes in overall system prices are not appearing at a level suitable for many smaller libraries. Discounted

or lower prices for hardware are not applied equally across the wide spectrum of other costs associated with a successful system. Historically, while automation insiders have recognized the confusing and complex pricing methods inherent in the "turnkey" concept, the realities and limitations of "packaged" pricing are shocking to some potential consumers.

The fact is that there are so many different costs that vendors have incorporated (skeptics would say "hidden") into the pricing of turnkey systems, that overall system pricing remains somewhat immune to dramatic drops in pricing of any one cost component of the system, even when it may be as major as the computer hardware. Most vendors continue to argue that the cost to provide installation support, training, and to assist a library in special areas (e.g., data conversion or telecommunications) is about the same for a very large and a very small library. Some argue that the smaller library frequently requires more consulting and implementation assistance than a larger library, just the opposite of the potential financial rewards for the vendor.

Several vendors have made sincere attempts to break through this cost barrier by marketing systems that list training and installation services as extra costs. However, the \$65,000+ base sticker price of such systems is still too expensive to crack the huge, and now increasingly impatient, marketplace represented by the library that desires to install a ten- to 15-terminal system providing circulation control and a full online public access catalog.

Tired of waiting, many smaller institutions are seeking out lower-cost microcomputer-based systems, regardless of the warnings by many "experts" who question how a micro system will hold up under such issues as: long-term system life, inability to maintain a MARC database, lack of portability of software to larger machines (assuming the library will grow, of course), or more limited functionality, to name a few.

Many libraries challenge these caveats, stating that "small libraries are different" and move ahead with microcomputer-based alternatives, while many others are waiting and watching a little longer. This is the same small vs. big argument that has raged for years on issues such as cataloging standards, use of Library of Congress subject headings, need for professional librarians—only now it has been applied to automation.

Regardless of these professional philosophical arguments, the low-end mini and microcomputer markets continue to see ever-falling hardware prices. As the cost of computation continues to decline, the real scrambling for the small library automation systems business is and will continue to be an increasingly tough battle. With microcomputers seeing their power and disk storage doubling every two years (per technology dollar invested), it is only a matter of time before these microcomputer-based library systems will be able to provide suitable power to support the terminal loads and transaction throughput, along with adequate storage for and the ability to load, maintain, and output MARC records.

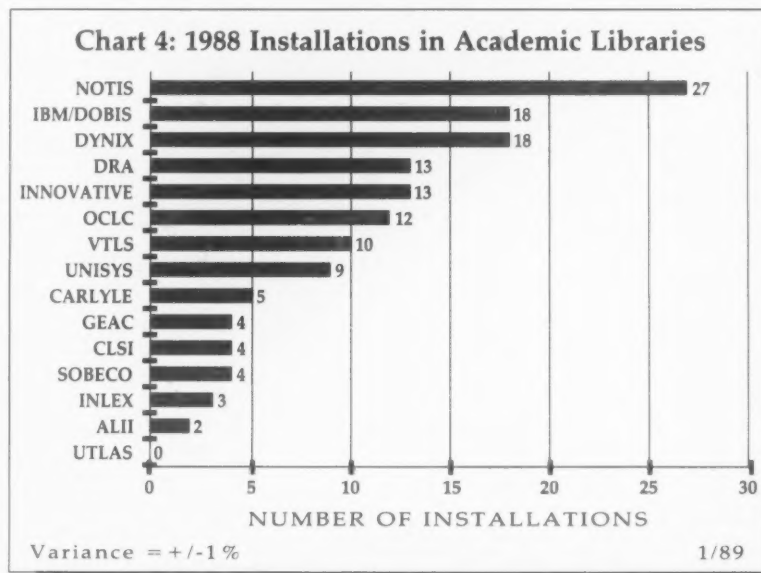
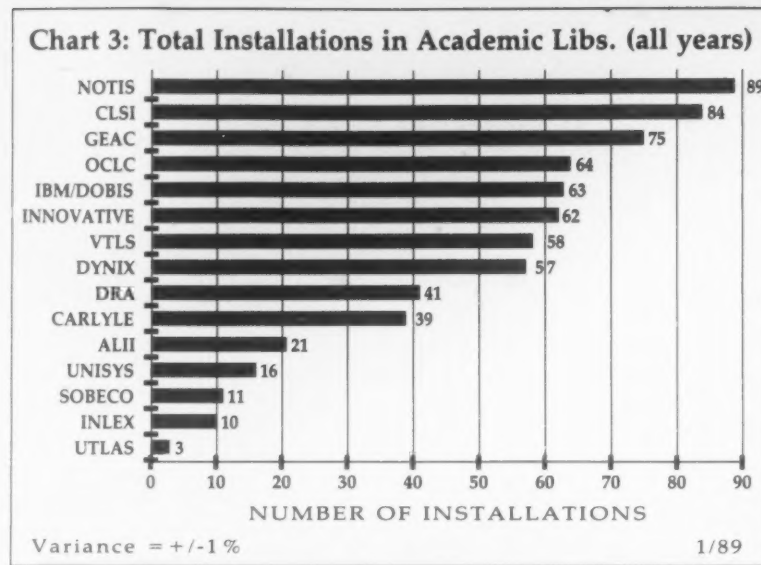
Nevertheless, as the power of these systems improves and the cost-performance increases their attractiveness, it remains unclear how fully microcomputer-based integrated systems will be profitably marketed to libraries with the same level of consulting, training, and installation services provided by the larger turnkey system vendors.

There is now a clearly charted marketing collision course between the traditional larger turnkey system vendors and the aggressive, successful "break the MARC rules" microcomputer vendors. During this battle, the traditional turnkey vendors will struggle with the challenge of creating alternative methods for providing suitable and less expensive training and support; the microcomputer vendors will fight the strong upstream currents of tradition by adapting their products to MARC and fuller functionality, all the while damping the necessity and appropriateness of such features for the small library.

### Some new "fast-track vendors"

Despite the flattening of the sales curve, 1988 showed a continued "fast track" effort by several vendors from where they left off in 1987. There are also a couple of new vendors to watch. As illustrated in Chart 1, CLSI remained the automation granddaddy, the overall leader in total installed systems for all years with 331 systems. Even with these many years protecting its overall market share, CLSI saw another erosion of its slice of the pie as its market share dropped from 22 percent in 1987 to 19 percent in 1988—a downward trend now firmly established and predictable.

The second place position, although somewhat precarious last year, seemed to belong firmly to



Dynix with 206 users. As shown in Chart 2, Dynix installations in 1988 were a remarkable 77 systems, pushing significantly beyond its all-time record of 67 systems in 1987.

While less than CLSI or Dynix in market share, Chart 2 reveals that a couple of new vendors have elected to put on their track shoes as well, leaving no vendor any degree of respite in the marketplace. The major newcomer in this group was Sobeco/MultiLIS, a Canadian-based firm that increased its user base by over 139 percent, from 22 systems in 1987 to 55 by the end of 1988.

Another vendor that showed continued and steady market growth was Innovative Interfaces, Inc. (II), up an additional 27 systems during 1988.

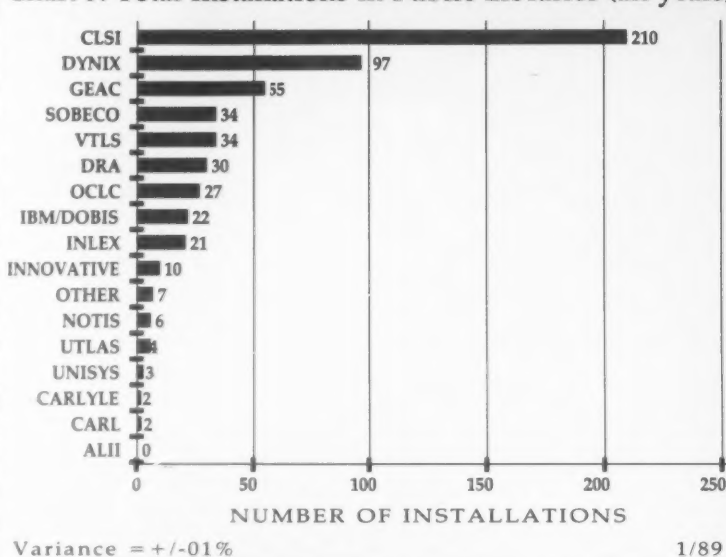
While Innovative has long enjoyed a reputation for a highly serviceable serials/acquisitions control system, it also successfully navigated the difficult transition to the fully integrated system market, finding wide acceptance of its online public access catalog and circulation modules. Both Innovative and Sobeco are able to operate on standard Digital Equipment Corporation hardware under the standard VMS software, which makes these two vendors additional viable alternatives for libraries that use DEC hardware or those that find it desirable.

The successful growth of Innovative into the mainstream of integrated systems is a dramatic contrast to Carlyle, a vendor that was almost

completely overwhelmed by rumors of financial difficulty, staff cutbacks, and problems concerning the release of a fully functional circulation component. After showing installation strength during 1987, the current status of Carlyle and its customers appears to be tenuous. Carlyle's ability to show growth and stability in 1989 will probably determine whether it will be embraced by future libraries or join the ranks of DataPhase, Cincinnati Electronics, and other down-and-out vendors.

Another surprise, not because of actual system installations but because the company elected to more fully participate in this analysis, was the IBM-based DOBIS system. The software package, marketed by IBM, has enjoyed considerable use throughout the world and has witnessed 34 installations in 1988. While the vast majority of the system installations are not in the United States, the pres-

**Chart 5: Total Installations in Public Libraries (all years)**



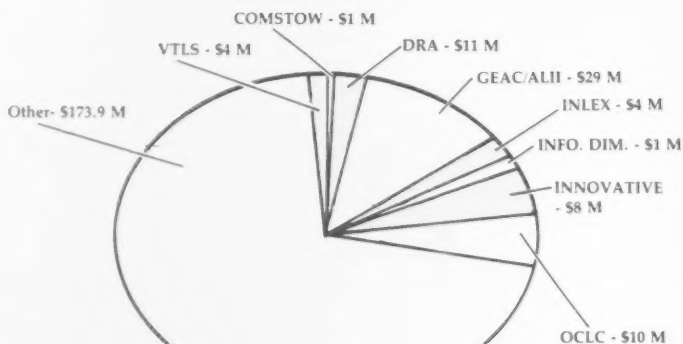
## Counting Market Share:

DURING 1988, Data Research Associates issued a broad challenge to the vendors and the authors of this article to abandon market analysis based on installations and to use only audited, gross library automation revenues as the basis of awarding market share. As stated in last year's analysis (*LJ*, April 1, 1988, p. 39), the authors generally support the migration to some form of revenue analysis in addition to analysis by number of installations and the additional market segment breakdowns that are provided. The authors continue to hold that many, perhaps most, readers of this article are interested in two fundamental questions: What types of systems are my colleague "type" of library institutions installing? What vendors are successful at installing systems for my "size" of library? Were it possible to provide reliable revenue analysis for each vendor, it would then be possible to examine a third, frequently asked question: Which vendors are healthy and which vendors are not? Clearly, this question could best be drawn from financial assessments.

This is all very interesting, but remains an academic, philosophical exercise. Of the 21 surveys that were returned for analysis, the authors find it worthy of note that only eight of the vendors were willing to permit the publishing of their revenue figures. The majority of the remainder provided actual figures, but did not allow us to reveal the individual amounts. Several provided no figures at all. When one considers that 62 percent of the major vendors would not provide publishable financial information to the library community, it is little wonder that there is considerable controversy regarding any description of the library automation marketplace.

So we must ask the question to you the readers: Is revenue analysis valuable to you in the form we can obtain it? (Examine this revenue-based market analysis and let us hear from you. Should we keep trying on this issue or give it up?)

**Gross Automated Library Revenues, All Sources, 1988 (in millions of dollars)**



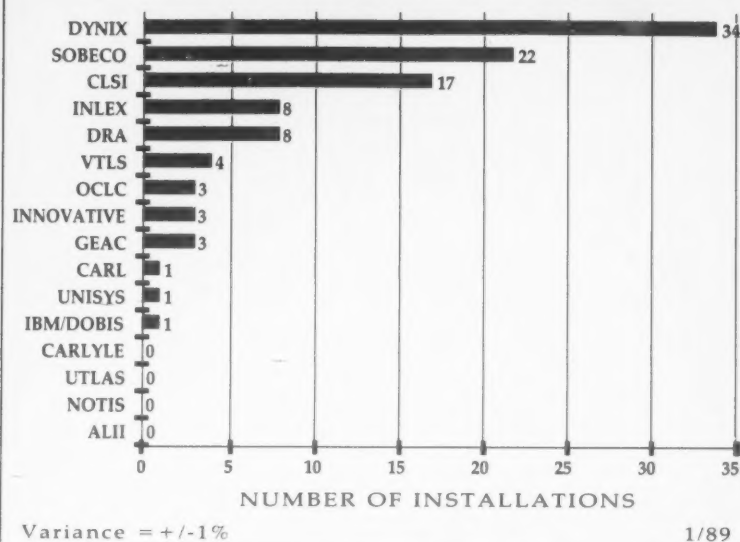
We also collected the thoughts and perspectives from the vendor community and their suggestions showed a preference for a variety of reporting methods. The authors believe that no method is entirely satisfactory. Here is what they said.

As a publicly traded company on the Toronto Stock Exchange, Geac Computers has an obvious bias toward having all financial information reported from audited financial statements. Geac supports the disclosure of financial information using audited financial statements.—**Joseph Matthews, Geac Computer Corporation Limited**

[W]e are virtually the only library automa-

tion vendor that actually releases its audited financial statements . . . . The only conceivable objection to public release of audited financial statements would come from vendors wishing to cover up the questionable financial condition of their companies . . . . [Financial disclosure] will remove the immense distortion that has thus far pervaded the *LJ* analysis of the market. Under the current analysis, a vendor can be judged "hot" merely by selling a large number of systems. The insidious danger here is that *LJ* will award the vendor "rising star" status, yet without audited financial reports, the vendor would be selling its system at deep, and financially imprudent, discounts.—**Carl Grant, Data Research Associates**

Chart 6: 1988 Installations in Public Libraries



ence of the product in the industry is significant and this is the first year that IBM has changed corporate policy sufficiently to permit the reporting of the specifics regarding DOBIS business activities. (Note: During prior years, this product was hidden in the "Other" category due to lack of IBM authorization to publish individual statistics.) Another newcomer to this article, although not necessarily to the library automation marketplace, is Information Dimensions, a Dublin neighbor to OCLC. This vendor sold 35 systems this year, all to special libraries.

### Installations

The best way for libraries to gauge vendor market shares is not by looking at combined, summary figures, but to more closely examine market segment breakdowns by size of system installation and type of library. These segmented statistical

## Vendor Consensus or Confusion?

Audited financial statements are an additional expense and not an appropriate gauge by which to measure marketshare. However, in too many of the discussions of the marketplace and illustrations of success, we see the comparison of nonequal systems listed by number of systems installed and those numbers are cited as the measure of a company's success rate. . . . Comstow is rarely highlighted. Several other measures seem more to the point:

- Systems installed by type of library;
- Customer satisfaction with the vendor;
- Number of lost clients due to switching to other systems; and
- Ability to meet goals and objectives in development.

—Jane Kalfus-Maine, Sales Coordinator, Comstow Information Services

It is our belief at CLSI that there are a number of useful ways to measure library automation market share: number of systems sold, number of systems installed, and revenues, for example. . . . However, the measure we find most useful is the amount sold, divided between new systems and add-ons to existing systems, and then accounting for maintenance service and support fees as a separate figure. . . . While revenue sounds like a good measure, this too has its problems for comparative purposes since automation suppliers often recognize revenue differently, regardless of auditors, and it is sometimes difficult to extract comparative revenue amounts from a single company's audited financial statement, not to mention a company which sells something in addition to library systems. —Charles E. Farley Jr., Vice President Marketing, CLSI, Inc.

We openly share our audited financial statements with clients and prospective customers. . . . Many vendors could be hurt tremendously by misjudgments of persons not well versed in financial analysis.

Worse, and unfortunately even more likely, deliberate distortions by competitors about another firm's financial position will confuse and mislead buyers. In most cases it backfires on the perpetrator. . . . I believe the [audited financial data] in the marketplace article would be meaningless as well as misleading. Few companies' financial years coincide with the calendar year [as reported in the marketplace article]. —D. Keith Wilson, Vice President, Dynix, Inc.

Though this method may have merit in concept, it would be a nightmare in practice. In order to comply, all vendors would have to: 1) have a consistent accounting period, be it annual or fiscal; 2) use a standard and consistent method of recognizing revenue; 3) have accounting firms that could report on a timely basis; and 4) agree to the terminology used in reporting.

Though the current "fill-in-the-blanks" method of gathering data for the survey may not be auditable, an attempt on the part of the survey reporters to match audited data from the widely varied types of suppliers in this industry could expose the reporters to some liability. We don't object to the concept, and would attempt to comply if it became a requirement; we believe it would be quite unworkable from both the suppliers and the reporters point of view. —George Sidman, President, INLEX, Inc.

Yes, this would be an appropriate way to determine market share. An audited financial statement would not be available from Information Dimensions, Inc. until April. —Jill E. Richardson, Sales Support Representative, Information Dimensions, Inc.

Revenue by itself is not a better measure of market share. . . . The best measure of market share is number of institutions, where installations are broken down by type of library (public, university, special

and size (e.g., number of volumes held by the library). —Stephen Silberstein, Vice President, Innovative Interfaces, Inc.

We understand that revenues are an appropriate measure of market share. However, we feel that measurement of market share based on revenue alone would not be an accurate indicator of market share due to the fact that: a) the data would be a reflection of pricing policies as opposed to market penetration; b) the dollar amounts would be affected by whether the vendor markets hardware or not; and c) even with "audited" financial statements, different firms have different, yet perfectly acceptable, rules for determining when an activity translated into revenue.

We think that it would be difficult to get truly comparable data. —Keith Gitter, Marketing Coordinator, NOTIS Systems, Inc.

OCLC's fiscal year ends June 30. In order to complete this calendar year report we would have to combine two fiscal years, one-half year from audited financial statements, and the remaining half-year from unaudited financial statements. . . . It is OCLC's policy not to release any internal, unaudited financial statements. Local Systems is included in our annual report as a separate line item. . . . The Annual Report is very widely distributed. —Phyllis Bova Spies, Vice President, Local Systems Division, OCLC, Inc.

We agree that market share should be defined as a percentage of revenues as long as we count revenues from software sales only. A clearer definition would be to only include revenues from sales of products that are manufactured by each company and for services that are provided by the company. Revenues from resale of equipment and any products or services that are provided by a subcontractor should be excluded. —Vinod Chacra, President, VTLS, Inc.

examinations provide a better sense of what comparable institutions have been doing in the way of automation.

When examining the installations by library type, the 1988 marketplace again saw somewhat less stability when compared with 1987. As shown in Chart 3 and Chart 4, the clear academic library choice is NOTIS, pushing aside CLSI from its all-time first place position. Chart 5 and Chart 6 examine patterns in public library activity, the most noteworthy issue being the strong and new presence of Sobeco as the number two vendor behind Dynix, both now the vendors of choice by the most public libraries.

Charts 7-10 break out the installation of systems by number of online terminals supported. Generally, the number of terminals is a reliable variable to measure system size. As a slight departure from the 1987 survey, this analysis establishes a separate chart for those systems installed for the very large libraries, those installing in excess of 125 terminals. While CLSI and Geac remain the tenured, historical leaders, it is interesting to note that six different firms performed equally well installing these very large systems during 1988.

Finally, as shown in Chart 11, Europe increased its installation activity during 1988, expanding to account for half of all systems installed overseas. This overseas market continues to grow in importance and most vendors now have and are initiating some form of marketing and sales program on foreign shores.

### Vendor profiles

The marketplace is healthy and continues to grow. Vendor market shares are becoming more competitive and the annual installation completion is relatively balanced, except for Dynix which continues its dominant, aggressive position in annual installations. Should these growth trends continue, the analysis planned for 1989 will probably expose new shifts in market position—but this time in historical market share, not just annual installations. And small library installations, in ever-increasing numbers, will be key to influencing these shifts and setting these priorities.

### Advanced Libraries & Information (ALII)

Along with its well-known vice president and former automation guru Joe Matthews, Geac acquired Advanced Libraries during 1988. Al-

**Chart 7: Vendor Installations of Smaller Systems (1-16 terminals)**

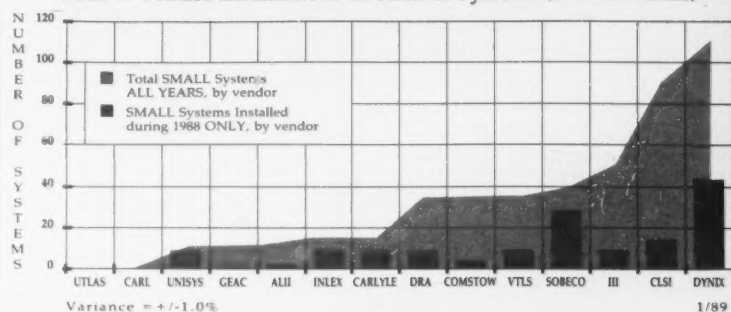


**Chart 8: Vendor Installations of Medium Systems (17-64 terminals)**

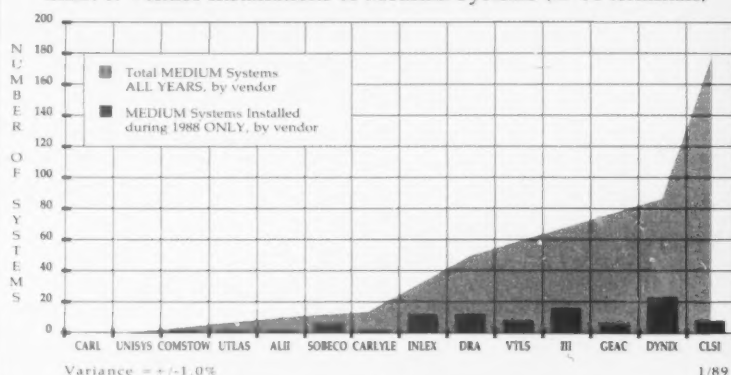


**Chart 9: Vendor Installations of Larger Systems (65-124 terminals)**

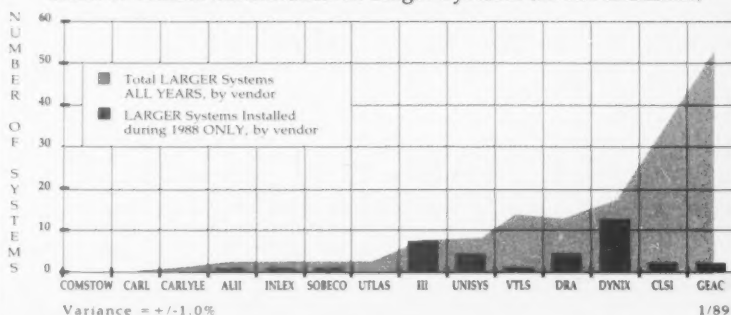


**Chart 10: Vendor Installations of Larger Systems (125+ terminals)**

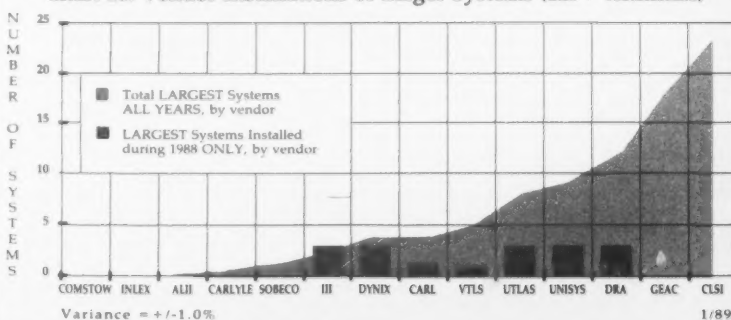
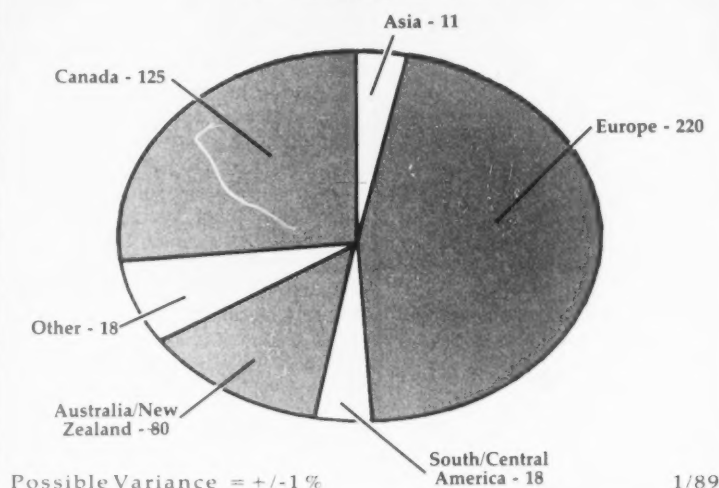


**Chart 11: Total Foreign Installations,  
by Geographic Area**



though last year the authors indicated that ALII would have to show a measurable increase in sales during 1988 in order to remain viable, this absorption may prove profitable for both ALII and its parent in 1989. ALII's standard Pick-based operating system allows it to run on a number of suitable hardware platforms, and this flexibility may be helpful in offsetting the proprietary Geac hardware/software environment. Additional comments concerning this merger are included in the Geac section below.

#### CARL

Although the name is new to the marketplace, the company is not. Formerly known as Eyring, its software operates on Tandem hardware, and has typically served very large library networks. Bucking this "big-ticket" reputation, however, the vendor claimed that the newer Tandem CLX office environment computer line-up could make the system more affordable for the small to medium-sized library. The vendor also reported that it had expanded its online public access services to include *Grolier's Encyclopedia* in full text, and *Metro Denver Facts*. CARL also recently completed its serials access and control software, which includes direct access to journal articles and tables of contents.

#### Carlyle

By its own admission, Carlyle had a rocky 12 months, caused by technical problems encountered with

the completion of its circulation system. The vendor reported major progress in correcting these and other problems, and expected to combine with another major library automation vendor in the near future. It claimed that this change would result in increased financial stability, and would allow Carlyle to offer a well-supported integrated package to both new and existing customers.

#### CLSI

CLSI experienced a somewhat difficult year, not only in continued erosion of its market share, but also with many of its users, who have found themselves frustrated with both vendor implementation and logistical support. The company has acknowledged these difficulties, and has begun an effort to expand and re-

organize its customer support operations. Nevertheless, it is the authors' opinion that some of the erosion of CLSI's market share has been directly attributable to the grumbling of some of its current users.

Some of the 1988 CLSI accomplishments included the complete change to the standard UNIX operating system, allowing the flexibility of several viable hardware platforms. In 1988, the company delivered two new stand-alone systems that use the Sequent and Altos computers. The company reported two major contracts, one with Mississippi State University, and another with the City of Paris Libraries. CLSI also introduced CD-CAT, its CD-ROM-based catalog.

#### Comstow Information Services

With its BiblioTech software, Comstow is a newcomer to close-up profiling in this marketplace article series. Although the vendor is not very familiar to public and academic libraries, it has over 30 corporate and special library users. The system operates on the DEC VAX series of computers, and a UNIX version is under development. The software includes catalog maintenance, authority control, and report writer. Optional modules include circulation, periodicals control, accounting, and thesaurus control. In 1988, the vendor reported a major software release update for the thesaurus control, thereby complementing the authority control system. The release also included circulation control enhancements and a security system. Goals for 1989 include the general delivery of this software release to Comstow's users, gateway software to external databases, and a patents tracking module.

**Table 1: Hardware Availability**

| Manufacturer            | Model                                  | Vendor                                                                                                     |
|-------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------|
| Altos                   | 2000                                   | CLSI                                                                                                       |
| Amdahl                  | all                                    | NOTIS                                                                                                      |
| ARIX                    | all                                    | Innovative Interfaces                                                                                      |
| C. Itoh                 | 50-<br>150<br>250<br>350<br>550        | Advanced Libraries<br>Advanced Libraries<br>Advanced Libraries<br>Advanced Libraries<br>Advanced Libraries |
| Control Data            | Omega series only<br>180 series        | NOTIS<br>Information Dimensions                                                                            |
| Convergent Technologies | all UNIX                               | Innovative Interfaces                                                                                      |
| Data General            | C350<br>MV/XXXX Series<br>S/XXX Series | OCLC-LS/2000<br>OCLC-LS/2000<br>OCLC-LS/2000                                                               |

# Data Research Associates

Data Research Associates is perhaps the vendor best known for its ardent and prudent advocacy of industry standards for hardware, software, and data formats. Its comprehensive line of library software products saw several upgrades, including a general report writer, and new versions of circulation, acquisitions, and library for the blind and physically handicapped. The company anticipates several software enhancements for 1989, including multilingual screens, reserve book room, materials booking, serials control, and a new public access catalog. DRA has continued to show strong sales, not only as a turnkey vendor, but also as a software-only vendor for those libraries with access to DEC VAX hardware.

## Dynix

Despite some of last year's competitor envy, Dynix continued its record-breaking pattern with hardly a backward glance. Although the company sold 67 systems in 1987, Dynix sold a staggering 77 systems in 1988. Twenty-eight were sold in Australia, an area that the company clearly targeted last year. Despite these sales numbers, Dynix's avowed emphasis has been customer satisfaction and employee development. In the experience of the authors, this seems to remain an accurate pattern thus far. The company has completely shed its "small library" typecasting, successfully testing a 400-terminal network at Multnomah County Library System in Portland, Oregon. Another Dynix product/service emphasis has been the successful migration from other vendor automation packages to the Dynix product. As libraries outgrow their first systems, vendor expertise in smooth transitions will become increasingly important and desirable. Goals for 1989 include media scheduling, public access catalog enhancements, and new hardware platforms.

## Geac

Geac reported that it returned to profitability during the last quarter of its fiscal year, and stated that it expected that all four quarters for this fiscal year would also be profitable. The vendor also reported that it had installed 27 Geac 9000 computers worldwide, and claimed that the performance of this newest Geac computer has been significant. Software development for the Geac system was

| Manufacturer            | Model                  | Vendor                    |
|-------------------------|------------------------|---------------------------|
| Digital Equipment Corp. | microVAX Series        | Comstow                   |
|                         | PDP 11/XX Series       | Sobeco/MultiLIS           |
|                         | PDP 11/XX Series       | CLSI                      |
|                         | PDP 11/XX Series       | OCLC-LS/2000              |
|                         | VAX Series             | Universal Library Systems |
|                         | VAX Series             | Advanced Libraries        |
|                         | VAX Series             | Comstow                   |
|                         | VAX Series             | DRA                       |
|                         | VAX Series             | Dynix                     |
|                         | VAX Series             | Information Dimensions    |
|                         | VAX Series             | Innovative Interfaces     |
|                         | VAX Series             | Sobeco/MultiLIS           |
|                         | VAX Series             | Universal Library Systems |
| Formation               | 400 only               | NOTIS                     |
| Fujitsu                 |                        | Advanced Libraries        |
| Geac                    | 6000                   | Geac                      |
|                         | 8000                   | Geac                      |
|                         | 9000                   | Geac                      |
| Hewlett Packard         | 3000                   | INLEX                     |
|                         | 3000                   | VTLS                      |
|                         | 9000 under UNIX        | Dynix                     |
| Honeywell               | DPS/6                  | Dynix                     |
|                         | DPS/6                  | Advanced Libraries        |
| IBM                     | 370                    | Dynix                     |
|                         | 937X                   | Dynix                     |
|                         | 30XX Series            | NOTIS                     |
|                         |                        | Information Dimensions    |
|                         | 309X Series            | Dynix                     |
|                         |                        | DOBIS                     |
|                         | 370 Series             | NOTIS                     |
|                         |                        | Dynix                     |
|                         | 43XX Series            | NOTIS                     |
|                         |                        | Information Dimensions    |
|                         |                        | Dynix                     |
|                         |                        | DOBIS                     |
|                         | 937X Series            | NOTIS                     |
|                         |                        | DOBIS                     |
|                         |                        | Information Dimensions    |
| Innovative Interfaces   | INNOVACQ               | Innovative Interfaces     |
| Intel                   | DPX                    | Carlyle                   |
| McDonnell Douglas       | any w/PICK OS          | Advanced Libraries        |
|                         | any w/PICK OS          | Dynix                     |
| Magnuson                | all                    | NOTIS                     |
| MIPS                    | M/120-M/2000           | Sobeco/MultiLIS           |
| Motorola Four-Phase     | 311 & 312 only         | NOTIS                     |
| Natl. Advanced Systems  | all                    | NOTIS                     |
| NCR                     | Tower 32/200-850       | Sobeco/MultiLIS           |
| Nixdorf                 | all                    | NOTIS                     |
| Prime                   | any w/PICK OS          | Advanced Libraries        |
|                         | any w/PICK OS          | Dynix                     |
| Sequent                 | B 21                   | CLSI                      |
|                         | B 8                    | CLSI                      |
|                         | S 27                   | CLSI                      |
|                         | S 81                   | CLSI                      |
|                         | any w/UNIX OS          | Dynix                     |
| Sequoia                 | any w/PICK OS          | Advanced Libraries        |
|                         | any w/UNIX OS          | Dynix                     |
| Tandem                  | CLX                    | CARL                      |
|                         | CLX                    | Utlas                     |
|                         | TNSII                  | CARL                      |
|                         | TXP                    | CARL                      |
|                         | VLX                    | CARL                      |
|                         | VLX                    | Utlas                     |
| Ultimate                | all                    | Dynix                     |
| UNISYS                  | 1100,2200,PW2,U-Series | UNISYS                    |
|                         | any w/UNIX OS          | Dynix                     |
|                         | 6                      | Pueblo                    |
|                         | 8                      | Pueblo                    |
|                         | 10                     | Pueblo                    |
|                         | 90/XX Series           | Pueblo                    |
| Wang                    | VS Series, exc. 80     | Information Dimensions    |
| Wyse                    | 2108                   | CLSI                      |
|                         | XT,286,386             | OCLC-LS/2000              |

consolidated in Toronto and in Bristol, England. According to Geac, this consolidation has meant that software has been released to Geac customers in a timely manner. Goals for 1989 include the integration of the Advanced Libraries and Information staff and assets, resulting from Geac's acquisition of this company in 1988. Geac plans to market heavily in Europe and Australia, and feels that with the ALII product it is able to meet a variety of library automation needs.

#### IBM/DOBIS

Although this IBM-based software is certainly no newcomer to the marketplace, it is to this review. The authors have experienced perennial problems in obtaining permission to publish any specific information. IBM's long-standing corporate policy against publication apparently stems from fears of sales losses. This software generally appeals to the academic market, or to those operations already owning suitable IBM hardware and software. The company sold 34 systems last year worldwide, four of them in the United States. Because the software operates on mainframe computers, the computing environment does not lend itself to the typical terminal counts seen with stand-alone systems. This is the reason for the omission from the terminal counts in Charts 7-10. The software carries the advantage, and the burden, of user reprogramming and customization. Significant 1988 company accomplishments included a major European software release (Version 2), and a special DOBIS/E Version supporting the Korean, Japanese, and Chinese character sets. Goals for 1989 include a Version 2 software release for the United States.

#### Information Dimensions

Information Dimensions is another newcomer to be profiled. With software sales of over \$1 million, the company targets its marketing efforts at corporate libraries. Information Dimensions is a subsidiary of Batelle Development Corporation, and some library automation market observers may recognize the software by the name of the parent organization. The software functions on a number of hardware platforms under several operating systems, and typical usage occurs in a hardware environment shared by other corporate computer applications. (Please see Table 1 and 2 for the available hardware and operating systems for this package.)

**Table 2: Operating Systems**

| System               | Release                            | Vendor                                                                                   |
|----------------------|------------------------------------|------------------------------------------------------------------------------------------|
| Astro                | 3.3                                | Geac                                                                                     |
| CICS                 |                                    | DOBIS                                                                                    |
| CICS/VS              |                                    | NOTIS                                                                                    |
| CDC NOS/VE           | 1.2.14                             | Information Dimensions                                                                   |
| CLSI Proprietary     | 27.45                              | CLSI                                                                                     |
| Geos                 | 1.6                                | Geac                                                                                     |
| GUARDIAN             | 90 XF<br>C Series                  | CARL<br>Utlas                                                                            |
| Hewlett Packard MPE  | all                                | VTLS<br>INLEX                                                                            |
| Intel RMX86          | 7                                  | Carlyle                                                                                  |
| MIIS                 | 5.3                                | LS/2000 (OCLC)                                                                           |
| MS/DOS               | 3.0+                               | CLSI<br>Dynix                                                                            |
| MS/DOS               | 3.2                                | OCLC                                                                                     |
| MS/DOS               | 3.3                                | UNISYS                                                                                   |
| MVS-IBM/370          |                                    | NOTIS                                                                                    |
| MVS-IBM/SP           |                                    | DOBIS                                                                                    |
| MVS-IBM/TSO          | 3.7                                | Information Dimensions                                                                   |
| MVS-IBM/XA           |                                    | DOBIS<br>NOTIS                                                                           |
| OS1100               | 3R2                                | UNISYS                                                                                   |
| OS-IBM/VS1           |                                    | NOTIS                                                                                    |
| P/OS                 | 2                                  | CLSI                                                                                     |
| PICK                 | 5.2                                | Advanced Libraries<br>Dynix                                                              |
| PRIMOS (oper. PICK)  |                                    | Dynix                                                                                    |
| RSTS                 | 7.2                                | Universal Library Systems                                                                |
| ULTRIX               | 3                                  | Innovative Interfaces<br>Information Dimensions                                          |
| UNISYS OS/3          |                                    | Pueblo                                                                                   |
| UNIX                 | 27.DBMS<br>27.45U                  | CLSI<br>CLSI                                                                             |
|                      | Version 3.<br>5.2                  | Dynix<br>Innovative Interfaces<br>Sobeco/MultiLIS<br>UNISYS                              |
| UNIX (oper. PICK)    |                                    | Dynix                                                                                    |
| VM-IBM/CMS           | 3.X and 4.X                        | Information Dimensions                                                                   |
| VM-IBM (oper. PICK)  |                                    | Dynix                                                                                    |
| VMS (DEC oper. PICK) |                                    | Dynix                                                                                    |
| VMS (DEC)            | latest<br>5<br>all<br>4.0-5.0<br>4 | DRA<br>Sobeco/MultiLIS<br>Universal Library Systems<br>Comstow<br>Information Dimensions |
| VSE-IBM              |                                    | DOBIS                                                                                    |
| VSE-IBM/DLIB         |                                    | NOTIS                                                                                    |
| VSE-IBM/SP           |                                    | NOTIS                                                                                    |
| Wang VS              | 6.21.04                            | Information Dimensions                                                                   |

The software includes a public access catalog, circulation control, and acquisitions. The company's goals for 1989 include a new software release and new documentation.

#### INLEX

Listed as one of the "fast-track" vendors of 1987, INLEX generally proceeded in this vein. Operating on the reliable Hewlett Packard 3000 Series hardware, the INLEX software successfully migrated from the classic 16-bit architecture to the newer

32-bit H/P RISC-chip computer series. Several benchmark tests were performed with this new computer series. In the vendor's opinion, these tests indicated that there was "no upper limit" on the number of terminals that the software can serve in a clustered computer environment. During 1988, two large libraries elected this hardware option, a 180-terminal network in Washington State, and one exceeding 500 terminals in Virginia. The vendor also reported a new marketing and support arrangement in Australia. Goals for 1989 include a

broadening of the authority control capabilities, and an enhanced version of the software suitable for consortia and larger library operations.

### Innovative Interfaces

Innovative Interfaces Inc., heretofore often known as Triple-I, informed the authors that they preferred the sobriquet "Innovative." A stated 1988 goal was "no longer to be ignored by library consultants," and the authors deemed this accurate. Innovative sold 27 systems during 1988, and although it has been generally known for its serials/acquisitions control system, the company's sales included nine systems of 65 or more terminals. Innovative sold 18 systems containing three or more subsystems, and this clearly placed the company in an important position in the library automation arena. Innovative reported the successful software migration to the DEC VAX environment, thereby providing the library automation marketplace with another viable option for this hardware line.

### NOTIS

NOTIS Systems, Inc. continued in 1988 as the preferred large academic library vendor. The company sold 27 systems, thereby trouncing its nearest competitor by a 50 percent margin. Running on IBM mainframes, the software is very popular in academic computing centers already partial to the Big Blue machines. Currently NOTIS is working to improve public access to information beyond the traditional library bibliographic collection. At Vanderbilt University NOTIS has added the Medline database to the public access catalog, and has permitted database searching via the usual NOTIS search commands. The vendor reported that by mid-1989 this search product will be available to other NOTIS customers, albeit at extra cost. In 1989 the vendor plans to increase the number of NOTIS-searchable databases.

### OCLC Local Systems

OCLC Local Systems also enjoyed a good year in 1988, installing 26 LS/2000 systems, including some very large ones. These included a network of 15 Kentucky community college libraries, and the Board of Cooperative Educational Services in New York State. The latter made the Guilderland School District one of the first school systems in New York State to use a minicomputer-based integrated library system. The compa-

Table 3: System Interfaces

| Vendor                 | OCLC | RLIN | WLN      | Utlas    | Biblio-File | Auto-graphics | Marvive  | Baker & Taylor | Brodart  | Other Interface             |
|------------------------|------|------|----------|----------|-------------|---------------|----------|----------------|----------|-----------------------------|
| Advanced Libraries     | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             |          | ✓              | ✓        | Mini-Marc<br>LaserQuest     |
| CARL                   | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             |          | ✓              | ✓        |                             |
| Carlyle                | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓ (tape) | ✓ (tape)       | ✓        | LSSI<br>PICA (tape)         |
| CLSI                   | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             |          | ✓              | ✓        |                             |
| Comstow                | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        |                             |
| Data Research Assocs.  | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        | Utlas<br>LSSI<br>LaserQuest |
| Dynix                  | ✓    | ✓    | ✓        | ✓ (tape) | ✓           | ✓             | ✓        | ✓              | ✓        |                             |
| Geac                   | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        |                             |
| IBM DOBIS              | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        |                             |
| Information Dimensions | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        | LaserQuest                  |
| INLEX                  | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        | BNA                         |
| Innovative Interfaces  | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        | Sris, Invoices (tape)       |
| NOTIS                  | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        |                             |
| OCLC (LS/2000)         | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        | Irving Network              |
| Pueblo                 | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        |                             |
| Sobeco/MultiLIS        | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        |                             |
| UNISYS                 | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓        | ✓              | ✓        |                             |
| Universal Lib. Systems | ✓    | ✓    | ✓        | ✓        | ✓           | ✓             | ✓ (tape) | ✓ (tape)       | ✓ (tape) | Natl. Lib. of Canada        |
| Utlas                  | ✓    | ✓    | ✓ (tape) | ✓        | ✓           | ✓ (tape)      | ✓ (tape) | ✓ (tape)       | ✓ (tape) |                             |
| VTLS                   | ✓    | ✓    | ✓ (tape) | ✓ (tape) | ✓           | ✓             | ✓ (tape) | ✓ (tape)       | ✓ (tape) | BNA<br>Science Press        |

Tape = data transfer via magnetic tape load only; not an interactive, online interface

Table 4: Serials/Acquisitions Interfaces

| Vendor                 | OCLC | RLIN | WLN | Utlas | Faxon | EBSCO | Read-more | Brodart | Other                                                                                       |
|------------------------|------|------|-----|-------|-------|-------|-----------|---------|---------------------------------------------------------------------------------------------|
| Advanced Libraries     | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| CARL                   | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| Carlyle                | ✓    |      |     |       | ✓     | ✓     |           |         | (INNOVACQ)                                                                                  |
| CLSI                   | ✓    |      |     |       | ✓     | ✓     |           |         | Menzies (UK)                                                                                |
| Data Research Assocs.  | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| Dynix                  | ✓    |      |     |       | ✓     | ✓     |           |         | Baker & Taylor<br>(any BISAC)                                                               |
| Geac                   | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| IBM DOBIS              | ✓    |      |     |       | ✓     | ✓     |           |         | Pro-Cite                                                                                    |
| Information Dimensions | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| INLEX                  | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| Innovative Interfaces  | ✓    |      |     |       | ✓     | ✓     |           |         | BNA, Coutts, Yankee,<br>Academic, Majors, Mid-<br>west, Hein, McGregor,<br>B&T, Harrasowitz |
| NOTIS                  | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| OCLC (LS/2000)         | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| Pueblo                 | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| Sobeco/MultiLIS        | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| UNISYS                 | ✓    |      |     |       | ✓     | ✓     |           |         |                                                                                             |
| Universal Lib. Systems | ✓    |      |     |       | ✓     | ✓     |           |         | Bibbase Acq.                                                                                |
| Utlas                  | ✓    |      |     |       | ✓     | ✓     |           |         | B&T, BNA                                                                                    |
| VTLS                   | ✓    |      |     |       | ✓     | ✓     |           |         | B&T, BNA, Science Pr.                                                                       |

ny also furnished release 1.0 of its ACQ350 microcomputer-based acquisitions control system. Goals for 1989 include a field test of a software product for local storage and searching of reference databases, and a new software release for the SC350 microcomputer-based serials control system.

### Sobeco/MultiLIS

As predicted last year, Canada-based Sobeco/MultiLIS had the necessary tools to be extremely competitive in the library automation marketplace. Although Dynix set the record this year for numbers of systems sold, Sobeco/MultiLIS increased its user base from 23 to 55, mostly in Canada. This increase translates into an impressive 139 percent user base growth in a single year. Operating on the popular DEC

VAX computer series under the VMS operating system, and on more generic hardware under the standard UNIX operating system, the software provides considerable user flexibility in hardware choices. Baylor University of Waco, Texas chose Sobeco/MultiLIS, and this added a very large academic library to the company's user list. In order to better serve the U.S. market, the company opened sales offices in Washington, D.C. and Norman, Oklahoma. Goals for 1989 include a new RISC computer providing an increased price/performance benefit. Serials control, interlibrary loan, and a multiuser MARC conversion package are some of the anticipated upcoming software developments. The authors anticipate a continued aggressive attack by this vendor on the U.S. library automation market.

## UNISYS

UNISYS, another newcomer to close-up profiling in this marketplace analysis, has a user base that includes a wide range of library types and locations, including considerable numbers of international users. The company accomplished several important goals during 1988. These included an interlibrary loan module, E-mail, a PC version of its library automation

software, and customer testing of its UNIX-based version of its software. Goals in 1989 are the completion and release of its UNIX-based software, and the enhancement of its library automation mainframe software.

## Utlas

As in 1987, Utlas remained one of the smaller system suppliers in 1988, selling three systems. Nevertheless

two of these were among the largest system configurations, exceeding 125 terminals each. Although the company's traditional niche has been the large system market, the adoption of the smaller Tandem CLX series computer would permit the vendor to pursue the medium-sized library market. Utlas reported that it experienced some slippage in software release dates during 1988, all related to personnel changes. Currently the vendor

Table 5: Interfacing with MARC

| Vendor                | OSI Reference Model                        | MARC    |           |            |         |          |          |         |            |          |            | Other Communication Standard                                                                                             |
|-----------------------|--------------------------------------------|---------|-----------|------------|---------|----------|----------|---------|------------|----------|------------|--------------------------------------------------------------------------------------------------------------------------|
|                       |                                            | LC MARC | OCLC MARC | RILIN MARC | US MARC | CAN MARC | AUS MARC | UK MARC | INTER MARC | UNI-MARC | UTLAS MARC |                                                                                                                          |
| Advanced Libraries    |                                            | ✓       | ✓         | ✓          | ✓       | ✓        | ✓        | ✓       | ✓          | ✓        | ✓          |                                                                                                                          |
| CARL                  | levels 1-5                                 | ✓       | ✓         | ✓          | ✓       | ✓        |          |         |            |          | ✓          | BISAC, TCP/IP, Serials; NISO summary & detailed holdings                                                                 |
| Carlyle               | levels 1-4<br>levels 5-7 will implement    |         |           |            |         |          |          |         |            |          |            | Standard patron record, when available                                                                                   |
| CLSI                  | levels 1-3                                 | ✓       | ✓         | ✓          | ✓       | ✓        | ✓        | ✓       | ✓          | ✓        | ✓          | UNIX, POSIX (IEEE 1003.1-1988), X.25                                                                                     |
| Comstow               |                                            | ✓       | ✓         | ✓          | ✓       | ✓        | ✓        | ✓       | ✓          | ✓        | ✓          | Converts all MARC to proprietary non-MARC format                                                                         |
| DRA                   | all                                        | ✓       | ✓         | ✓          | ✓       | ✓        |          |         |            |          | ✓          | X.400, ISBN, ISSN, Serials holdings, nonserial holdings, serials orders, claims, cancellations, other proposed standards |
| Dynix                 | levels 1-5                                 | ✓       | ✓         | ✓          | ✓       | ✓        | ✓        | ✓       | ✓          | ✓        | ✓          | BISAC, SISAC-proposed, NISO summary serials & monographs holdings<br>Standard patron and item record when available      |
| Geac                  | levels 1-7 for records transfer            | ✓       | ✓         |            |         | ✓        | ✓        | ✓       | ✓          | ✓        |            | BISAC/SISAC X.25                                                                                                         |
| IBM/DOBS              |                                            | ✓       | ✓         | ✓          | ✓       | ✓        | ✓        | ✓       |            | ✓        |            |                                                                                                                          |
| Info Dimensions       |                                            |         | ✓         |            |         |          |          |         |            |          |            |                                                                                                                          |
| INLEX                 |                                            | ✓       | ✓         | ✓          | ✓       | ✓        | ✓        | ✓       | ✓          | ✓        | ✓          | Input/output all MARC bibl & authority records                                                                           |
| Innovative Interfaces | will commit                                | ✓       | ✓         | ✓          | ✓       | ✓        |          |         |            |          | ✓          | TCP/IP, BISAC, Ethernet, RS-232                                                                                          |
| NOTIS                 | under development                          | ✓       | ✓         | ✓          | ✓       |          |          |         |            |          | ✓          | USMARC for holdings locations                                                                                            |
| OCLC LS/2000          | levels 1-3<br>levels 4-7 under development | ✓       | ✓         | ✓          | ✓       | ✓        | ✓        | ✓       | ✓          | ✓        |            | Serials claims, BISAC ordering, serials holdings-summary detailed                                                        |
| Pueblo                |                                            |         |           |            |         |          |          |         |            |          |            |                                                                                                                          |
| Sobeco/MultiLIS       | under development                          | ✓       | ✓         |            | ✓       | ✓        |          |         |            |          | ✓          | Serials holdings, ILL, X.25, X.400, UNIX System V                                                                        |
| ULISYS                | under development                          |         |           |            | ✓       | ✓        |          |         |            |          |            | USMARC for holdings                                                                                                      |
| UNISYS                | for UNIX                                   |         | ✓         |            |         |          | ✓        |         |            |          |            |                                                                                                                          |
| Utlas                 | levels 1-5<br>5-7 under development        | ✓       | ✓         | ✓          |         |          |          |         |            |          | ✓          | BISAC, X.25                                                                                                              |
| VTLS                  | under development                          |         |           |            | ✓       |          | ✓        | ✓       |            |          |            | FIN MARC, LIBRIS MARC, MALMARC, USMARC for holdings/locations                                                            |

**Table 6: Size of Installations**

| Vendor                 | Smallest Library Installed |         | Largest Library Installed |             |
|------------------------|----------------------------|---------|---------------------------|-------------|
|                        | Terminals                  | Titles  | Terminals                 | Titles      |
| Advanced Libraries     | 1                          | 15,000  | 200 +                     | 1,000,000   |
| CARL                   | 100                        | 200,000 | 600 +                     | 3,500,000   |
| Carlyle                | 4                          | 32,000  | 131                       | 1,400,000   |
| CLSI                   | 4                          | 21,840  | 290                       | 983,750     |
| Comstow                | 2                          | 5,000   | Undefined                 | 400,000     |
| Data Research Assocs.  | 5                          | 20,000  | 500 +                     | 1,400,000   |
| DOBIS                  | 1                          | 50,000  | 1,000 +                   | 2,000,000 + |
| Dynix                  | 3                          | 8,000   | 200                       | 750,000     |
| Geac                   | 3                          | 30,000  | 240                       | 1,600,000   |
| Information Dimensions | Undefined                  | 3,000   | Undefined                 | 150,000     |
| INLEX                  | 4                          | 3,000   | 68                        | 320,000     |
| Innovative Interfaces  | 1                          | 5,000   | 190                       | 1,000,000   |
| NOTIS                  | 26                         | 26,000  | 1100 +                    | 5,200,000   |
| OCLC LS/2000           | 1                          | 1,000   | 160                       | 1,000,000   |
| Pueblo                 | 9                          | 72,000  | 72                        | 200,000     |
| Sobeco MultiLIS        | 4                          | 10,000  | 200                       | 2,000,000   |
| UNISYS                 | 7                          | 7,000   | 678                       | 1,200,000   |
| Universal Lib. Systems | 8                          | 52,379  | 238                       | 587,576     |
| Utias                  | 18                         | 80,000  | 225                       | 3,000,000   |
| VTLS                   | 6                          | 6,000   | 170                       | 5,000,000   |

has several software products in quality assurance testing it claims will be released during 1989. These include public access catalog enhancements, authority control, and acquisitions and serials control subsystems.

### VTLS

VTLS, Inc. experienced considerable growth during 1988. The company opened two new offices in Europe, one in Finland and one in Sweden. Using the durable Hewlett Packard Series 3000 minicomputers, VTLS was awarded H/P National Account Program status, placing the company in the top three percent of all third-party software and value-added vendors. The software was redesigned to run on the new H/P high-end 900 series, thereby allowing VTLS users the capability of very large computer networks. A new and extensive software release is anticipated in March 1989. New enhancements include multilingual displays, LIBRIS MARC and FINMARC compatibility, and a journal indexing subsystem.

### Source List

|                                                                                                                                |                                                                                                           |                                                                                                                     |                                                                                                                                           |                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Advanced Libraries & Information, Inc.<br>Div. of Geac Computer<br>2570 S. Beretania St.<br>Honolulu, HI 96826<br>808-973-1111 | Data Trek, Inc.<br>167 Saxony Rd.<br>Encinitas, CA 92024<br>619-436-5055                                  | Georgetown University<br>Dahlgren Memorial Library<br>3900 Reservoir Rd. NW<br>Washington, DC 20007<br>202-625-7673 | Municipal Software<br>Consultants, Inc.<br>3012 Gateway Dr., Suite 290<br>Irving, TX 75063<br>214-518-0728                                | SIRSI Corporation<br>2904 Westcorp Blvd.<br>Huntsville, AL 35805<br>205-536-5881                     |
| Brodart Lib. Auto. Div.<br>500 Arch St.<br>Williamsport, PA 17705<br>800-233-8467                                              | Dougherty County PL<br>300 Pine Ave.<br>Albany, GA 31701-2533<br>912-431-2900                             | HCE Lib. Auto. Systems<br>PO Box 1853<br>Burleson, TX 76028<br>817-447-2969                                         | New Age Office Systems<br>d/b/a New Age/Orbit<br>798 21st Ave.<br>Albany, GA 31701<br>912-888-3986                                        | Sobeco (MultiLIS)<br>505 Dorchester Blvd. W.<br>Montreal, Quebec<br>Canada H2Z 1Y7<br>514-878-9090   |
| CALS Services Group, Ltd.<br>133 McKinstry Dr.<br>Elgin, IL 60120                                                              | Dynix, Inc.<br>151 E. 1700 S.<br>Provo, UT 84601<br>800-288-8020<br>801-375-2770                          | IBM/DOBIS<br>Library Marketing<br>472 Wheelers Farms Rd.<br>Milford, CT 06460<br>203-783-7350                       | NOTIS Systems, Inc.<br>1007 Church St., 2d fl.<br>Evanston, IL 60201-3622<br>312-866-0150                                                 | Sydney Development Corp.<br>1385 W. Eighth Ave.<br>Vancouver, B.C.<br>Canada V6H 3V9<br>604-734-8822 |
| CARL Systems, Inc.<br>777 Grant St., Suite 304<br>Denver, CO 80203<br>303-861-5319                                             | Easy Data Systems, Inc.<br>401-1200 Lonsdale Ave.<br>N. Vancouver, B.C.<br>Canada V7M 3H6<br>604-986-8261 | Information Access Corp.<br>11 Davis Dr.<br>Belmont, CA 94002<br>415-591-2333                                       | OCLC, Inc. (LC/2000)<br>Local Systems Division<br>6565 Frantz Rd.<br>Dublin, OH 43017<br>800-848-5878<br>614-764-6000                     | Systems Control, Inc.<br>PO Box 10025<br>Palo Alto, CA 94303<br>415-494-1165                         |
| Carlyle Systems, Inc.<br>5750 Hollis St.<br>Emeryville, CA 94608<br>800-274-4274                                               | EBSCO Subscription Svcs.<br>PO Box 1943<br>Birmingham, AL 35201<br>205-991-6600                           | Information Dimensions<br>655 Metro Place S., Suite 500<br>Dublin, OH 43017-1396<br>800-DATA-MGT                    | Penn State LIAS Prog.<br>E. 506 Pattee Library<br>University Park, PA 16802<br>814-865-1858                                               | UNISYS<br>Public Sector Marketing<br>PO Box 500<br>Blue Bell, PA 19424<br>215-542-6340               |
| Centel Information, Inc.<br>11400 Commerce Park Dr.<br>Reston, VA 22091<br>800-843-4850                                        | Eyring Research Inst., Inc.<br>[see CARL Systems, Inc.]                                                   | INLEX, Inc.<br>1900 Garden Rd., Suite 200<br>Monterey, CA 93942<br>800-553-1202                                     | Philson Network<br>Washington University<br>School of Medicine Library<br>660 S. Euclid Ave.<br>St. Louis, MO 63110<br>314-362-2788       | Universal Library Systems<br>1609-F Broadway<br>Bellingham, WA 98225<br>206-733-1732                 |
| Centennial Coll./<br>Bibliocentre<br>80 Cowdray Ct.<br>Scarborough, Ontario<br>Canada M1S 4N1                                  | F.W. Faxon Company<br>15 Southwest Park<br>Westwood, MA 02090<br>617-329-3350                             | Innovative Interfaces<br>2344 Sixth St.<br>Berkeley, CA 94710<br>800-444-2344                                       | Pike's Peak Library District<br>(Maggie's Place)<br>20 N. Cascade Ave.<br>PO Box 1579<br>Colorado Springs, CO 80901<br>303-473-2080, x241 | 205-1571 Bellevue Ave.<br>West Vancouver, BC<br>Canada V7V 1A6                                       |
| CLSI, Inc.<br>320 Nevada St.<br>Newtonville, MA 02160<br>800-365-0085                                                          | Follett Software Company<br>4506 Northwest Hwy.<br>Crystal Lake, IL 60014<br>800-323-3397                 | Library Automation Prods.<br>875 Ave. of the Americas<br>New York, NY 10001<br>212-967-7440                         | Pueblo Library District<br>100 E. Abriendo Ave.<br>Pueblo, CO 81004<br>303-544-1940                                                       | Utias<br>80 Bloor St. W., 2d fl.<br>Toronto, Ontario<br>Canada M5S 2V1<br>416-923-0890               |
| Columbia Computing Svcs.<br>8101 E. Prentice Ave.<br>Englewood, CO 80111-2911<br>800-663-0544                                  | Gaylord Bros. Lib. Auto.<br>PO Box 4901<br>Syracuse, NY 13221<br>800-634-6304<br>315-457-5070             | Library Corp. of America<br>(The Intelligent Catalog)<br>PO Box 40035<br>Washington, DC 20016<br>800-624-0559       | Ringgold Mgt. Systems<br>PO Box 368<br>Beaverton, OR 97075-0368<br>503-645-3502                                                           | Univ. of Wisc. Mem. Lib.<br>728 State St.<br>Madison, WI 53706<br>608-262-2600                       |
| Comstow Info. Svcs.<br>249 Ayer Rd., PO Box 277<br>Harvard, MA 01451-0277<br>508-772-2001                                      | General Research Corp.<br>5383 Hollister Ave.<br>PO Box 6770<br>Santa Barbara, CA 96130<br>800-235-6788   | Midland PL/Dow Memorial<br>1710 W. St. Andrews Dr.<br>Midland, MI 48640<br>517-835-7151                             | Sedna Corporation<br>PO Box 22436<br>Minneapolis, MN 55422<br>612-535-2326                                                                | VTLS, Inc.<br>1800 Kraft Dr.<br>Blacksburg, VA 24060<br>703-953-3605                                 |
| Data Research Assocs., Inc.<br>1276 N. Watson Rd.<br>St. Louis, MO 63132-1806<br>800-325-0888 (US)<br>800-331-3515 (Canada)    |                                                                                                           |                                                                                                                     |                                                                                                                                           | Winnebago Software Co.<br>121 S. Marshall<br>Caledonia, MN 55921<br>507-724-5411                     |